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1. Your reference AWP/48979/001

2. Patent applicant
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9819029.1

-1 SEP 1998

3. Full name, address and postcode of the or of each applicant (underline all surnames)

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TQ1 1QF

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

5775424001

4. Title of the invention

A MOBILE TELEPHONE CARRYING CASE

5. Name of your agent (if you have one)

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27 FURNIVAL STREET
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EC4A 1PQ

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Description 9

Claim(s) 5

Abstract

Drawing(s) 8 + 8

8

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Priority documents

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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77) 1

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Date

Raelt W. Tennant

1 September 1998

12. Name and daytime telephone number of person to contact in the United Kingdom

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A MOBILE TELEPHONE CARRYING CASE

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The present invention relates to a mobile telephone carrying casing.

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In the past it has been recognised that the exterior of a mobile telephone is subject to considerable wear and tear in use. To improve the situation, mobile telephone carrying casings have been sold which encase the mobile telephone and offer some protection against wear and tear. The mobile telephone carrying casings also help prevent the mobile telephone encased in the carrying casing from becoming dirty. The carrying casings tend to be fairly low-cost items which can be replaced periodically. To date, mobile telephone carrying casings have typically been made of either leather or an imitation of leather. While these mobile telephone carrying casings do offer some protection to the mobile telephones encased therein, they are themselves not particularly hard-wearing. In addition, the use of leather or imitations of leather, restricts the choice of colour and design. Furthermore, the cases in current use do not significantly inhibit the escape of microwaves or other potentially harmful waveforms.

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The present invention provides in a first aspect a mobile telephone carrying casing which can encase, contain and protect a mobile telephone carried thereby and which is an integer separate and independent from the carried mobile telephone and which consists wholly or principally of a rigid plastic material comprising at

least two parts, defining front and rear components, the front components encasing the front face of the mobile telephone and the rear components encasing the rear face of the mobile telephone, the components meeting in a line spaced apart from the front and rear faces of these components.

Preferably, the mobile telephone carrying casing allows a user to operate the encased mobile telephone whilst carried in the carrying casing.

Preferably, the front and rear components are attached by connecting means. Preferably, the connecting means include hinges.

Preferably, the two parts of the mobile telephone carrying casing are releasably attached by connecting means. Preferably, the connecting means comprises one or more clips located on one or more of the components which fasten to hooks or recesses on another component.

Preferably, the surface of at least one component of the carrying casing is provided with electromagnetic radiation screening means.

Preferably, the electromagnetic radiation screening means comprises a coating on a surface of one of the components of the carrying casing. Preferably the coating comprises silver and/or nickel. Preferably the coating is sprayed on an interior surface.

Advantageously, the mobile telephone carrying casing comprises an aperture for alignment with an earpiece of the mobile telephone carried thereby. Preferably, a

mobile telephone carrying casing comprises an aperture for alignment with a microphone of a mobile telephone carried thereby. Preferably, the mobile telephone carrying casing comprises an aperture through which volume control keys of the carried mobile telephone are accessible. In a preferred embodiment, the mobile telephone carrying casing comprises an aperture through which a display screen of the carried mobile telephone can be viewed.

Preferably, the mobile telephone carrying casing comprises an aperture through which an aerial from a mobile telephone can project. Preferably, the mobile telephone carrying casing comprises an aperture through which the mobile telephone can be recharged.

Preferably, at least one of the above mentioned apertures is shielded by at least one cover. Preferably, these covers are retractable.

Advantageously, the mobile telephone carrying casing is injection moulded from a thermo-plastic, such as ABS or ABS/Polycarbonate blend.

In a further preferred embodiment, the mobile telephone carrying casing comprises a membrane key pad and a number of apertures through which the membrane key pad can project, thus enabling activation of the keys located on the encased mobile telephone by depression of the keys on the membrane key pad. Preferably, the membrane key pad is attached to the remainder of the carrying casing. Preferably, at least one of the apertures is shielded by at least one cover. Preferably, the cover is retractable.

Preferably, at least one of the exterior surfaces of the contains grooves which ease gripping and thus opening of one component of the casing from another component of the casing.

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Advantageously, the mobile telephone carrying casing comprises attachment means for attaching the carrying casing to clothing of a user. Preferably, the attachment means can attach the carrying casing to a belt of the user, or to a holster located in a fixed place, such as the dashboard of a car.

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In a second aspect, the present invention provides a mobile telephone carrying casing which can encase, contain, and protect a mobile telephone and which is an integer separate and independent from the carried mobile telephone and comprises at least two parts which can be separated to allow introduction of a mobile telephone between the parts and joined together to encase the introduced mobile telephone, wherein at least one part comprises electromagnetic radiation shielding means.

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Preferably, the electromagnetic shielding means comprises a coating on a surface of one of the parts.

Preferably, the coating comprises an RF conductive coating. Preferably the coating contains nickel and/or silver. Preferably the coating is sprayed on an interior surface.

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In a third aspect of the present invention, there is provided use of the mobile telephone carrying case described above to encase, contain and protect a mobile telephone, the mobile telephone already having a casing which is an integral part of the mobile telephone.

It should be appreciated that when the word rigid is used in the specification, it does not imply that the material is completely rigid and instead the material can have some flexibility provided that it is capable of being self-supporting and is certainly more rigid than a sheet of leather or a sheet of imitation leather; i.e. it is not a pliable sheet material.

The mobile telephone carrying casing provided by the present invention is both sturdy and hard wearing and also offers a large variety of alternatives in terms of colour and design.

A preferred embodiment of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a mobile telephone carrying casing according to the present invention;

Figure 2 is a perspective view of the mobile telephone carrying casing of Figure 1, showing the two components separated;

Figure 3 is different perspective of the two components of the mobile telephone casing of Figure 2;

Figure 4 shows the interior surfaces of the mobile telephone carrying casing components;

Figure 5 shows the clips which releasably join the two components of the mobile telephone carrying case in greater detail;

Figure 6 shows the housing in which the clips engage in greater detail, together with a reverse perspective of one clip;

Figure 7 is a perspective view of a membrane key pad which may be inserted or attached to the mobile telephone carrying case; and

Figure 8 is a perspective view of the mobile telephone carrying casing, together with the membrane key pad of Figure 7, shown carrying a mobile telephone.

Referring first to Figure 1, the present invention can be seen to comprise a mobile telephone carrying casing 10 which is formed of rigid plastic material, most preferably from ABS (Acrylonitrile Butadiene Styrene) plastic, or a ABS/Polycarbonate blend, which is a tough material with good resistance to impact, even at low temperatures, and which can be printed on without pre-treatment. In fact the mobile telephone carrying casing comprises two parts, a front component 11 and a rear component 12, which meet and can be releasably joined in a line spaced apart from the front and rear faces of these components (see Figure 8). Although the join between the front and rear components is shown to be a straight line, this may not necessarily be so, but may be for example castellated.

Figures 2, 3 and 4 show the mobile telephone carrying casing 10 separated into its two parts, front component 11 and rear component 12. Numerous apertures are visible, some defined by the joining of the components 11 and 12; aperture 40 allows the display screen of a mobile phone to be viewed, aperture 25 allows the aerial of a mobile phone to project out of the casing 10, apertures 23 and 24 may be used to give access to volume control keys or for alignment with a microphone (not shown) or earpiece (not shown) of a mobile phone, aperture 26 may be used to give access to the base of a mobile for recharging the battery, and apertures 31 would allow the membrane key pad 35, of Figure 7, to protrude enabling activation of the mobile phone keys through depression of the keys of a membrane key pad 35. The membrane key pad 35 protects the mobile phone keys which are relatively expensive and complicated to replace, unlike the membrane key pad. Aperture 40, in particular, may be fitted with a transparent shield to protect the display unit of the mobile phone.

Figures 5 and 6 show, in greater detail, the clip 30 conveniently located towards the base of the carrying case 10. Similar clips 15 may be used to join the rear component 12 to the front component 11 at various locations along the mating edges. The clips 15 and 30 may of course project from the mating edges of either of the front component 11 or rear component 12, as long as they are suitably positioned with respect to receiving recesses 20 and 21 in the opposing component.

As can be seen from Figures 5 and 6, clip 30 is shown to be moulded from the rear component 12, although only joined to the component 12 along the base of the clip 30. The front surface of the clip 30 is shown to have grooves 14, which ease gripping of the clip 30. Thus, depression of the clip 30, at a location 14, will move the head 13 of the clip 30 out of the recess 20, and thus disengage the clip 30, allowing the separation of front and rear component 11 and 12 respectively.

As can be seen from the figures, the casing 10 generally conforms to the shape of a mobile phone such that there is limited relative movement between the encased mobile phone and the casing 10. As can be seen from Figures 4 and 5, there are a number of ridges 45 on the internal surface of the rear component 12. These aid in securing the mobile phone within the casing 10. In addition, their limited contact area with the mobile phone, reduces the amount of conduction of heat away from the mobile phone and to the user, thus increasing comfort for the user, particularly during extended usage periods. Furthermore, air which would encircle the space between the mobile phone and the casing 10, may provide convection of heat away from the mobile phone.

The mobile telephone carrying casing 10 is more resistant to wear than the leather or imitation leather

carrying casings known in the prior art and can be made of many different colours and designs. Thus, the carrying casing of the invention can be made aesthetically pleasing.

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The mobile telephone carrying casing 10 can be provided with an attachment means (not shown) on, for example, the rear component 12, to enable attachment to clothing of a user. For instance, a hook or belt clip could be defined on the rear component 12 in order to enable the carrying casing 10 to be hooked onto a belt of the user or to a holster located in a fixed place, such as the dashboard of a car.

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In the embodiment shown, the mobile telephone will be removed from the carrying casing 10 when a battery needs replacing, although it would be possible to design a carrying casing with an aperture on the rear component 12 permitting battery replacement. Furthermore, the rear component 12 may itself be made from two portions such that the portion over the battery may be easily entirely removed, or it may be moved out of the way by the use of a hinge attachment to the remaining portion of the rear component 12.

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The front and/or rear components, 11 and 12, may be spray coated (not shown) with an RF (Radio Frequency) conductive paint. The applicant has established that coatings of nickel or silver on the components 11 and 12, reduce the strength of the electric field, generated by use of the mobile phone, at near and farfield locations by up to approximately 70-90%.

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The conductive paint provides screening of electromagnetic radiation. To ensure good screening the entire interior surface of the component 11 should be covered with conductive paint. It is preferable to cover

the interior surface with paint since it is less liable to wear and because the paint does not interfere with aesthetic exterior surface coatings which can be applied. The inward facing surface of the membrane having paint 35 can also be covered with conductive paint to minimise radio frequency emissions from the casing. It is most important to coat the part 11 since this faces the user's head. However, additional reduction in electromagnetic emissions can also be achieved by coating the interior of the part 12. It has been found that the coating of the casing parts 11, 12 whilst limiting electromagnetic radiation received by a user's hand, does not impair the functioning of an encased mobile telephone.

It will be appreciated that many modifications may be made to the above described embodiment without departing from the scope of the invention. For example, the cover over the volume control aperture may remain over the volume control when the volume level is adjusted, particularly if the volume controls are in the form of buttons which require depression. In this case, the cover would be flexible and clear.

Also, whilst in the preferred embodiment electromagnetic radiation screening is provided by conductive paint, other forms of screening could be used. For instance, conductive material could be included in the composition of the material forming the casing parts 11, 12 themselves and/or the material forming the membrane key pad 35.

CLAIMS

1. A mobile telephone carrying casing which can encase, contain, and protect a mobile telephone carried thereby, and which is an integer separate and independent from the carried mobile telephone which consists wholly or principally of a rigid plastic material comprising at least two parts, defining front and rear components, the front components encasing the front face of the mobile telephone and the rear components encasing the rear face of the mobile telephone, the components meeting in a line spaced apart from the front and rear faces of these components.

2. A mobile telephone carrying casing as claimed in claim 1 wherein the front and rear components meet in a plane substantially parallel to the front and rear faces.

3. A mobile telephone carrying casing as claimed in claim 1 or claim 2 which allows a user to operate the encased mobile telephone whilst carried in the carrying casing.

4. A mobile telephone carrying casing as claimed in any one of claims 1 to 3 wherein the front and rear components are attached by connecting means.

5. A mobile telephone carrying casing as claimed in claim 4 wherein the connecting means attaching the front and rear components include hinges.

6. A mobile telephone carrying casing as claimed in claim 2 or claim 3 wherein the front and rear components are releasably attached by the connecting means.

7. A mobile telephone carrying casing as claimed in claim 6 wherein the connecting means comprises one or more

clips located on one or more of the components which fasten to hooks or recesses on another component.

5 8. A mobile telephone carrying casing as claimed in any one of the preceding claims wherein at least one component is provided with electromagnetic radiation screening means.

10 9. A mobile telephone carrying casing as claimed in claim 8 wherein the electromagnetic radiation screening means comprises a coating applied to a surface of one of the components of the carrying casing.

15 10. A mobile telephone carrying casing as claimed in claim 9 wherein the coating contains silver.

20 11. A mobile telephone carrying casing as claimed in claim 9 or claim 10 wherein the coating contains nickel.

25 12. A mobile telephone carrying casing as claimed in any one of claims 9, 10 or 11 wherein the coating is sprayed on the surface of the component.

30 13. A mobile telephone carrying casing as claimed in claim 12 wherein the coating is sprayed on an interior surface of a component.

35 14. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises an aperture for alignment with an earpiece of the mobile telephone carried thereby.

40 15. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises an aperture for alignment with a microphone of a mobile telephone carried thereby.

16. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises an aperture through which volume control keys of the carried mobile telephone are accessible.

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17. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises an aperture through which a display screen of the carried mobile telephone can be viewed.

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18. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises an aperture through which an aerial from a mobile phone can project.

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19. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises an aperture through which the mobile phone can be recharged.

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20. A mobile telephone carrying casing as claimed in claims 9 to 19, wherein at least one of the apertures are shielded with a cover.

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21. A mobile telephone carrying casing as claimed in claim 20 wherein the cover is retractable.

22. A mobile telephone carrying casing as claimed in any one of the preceding claims which comprises components injection moulded from a thermo-plastic.

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23. A mobile telephone carrying casing as claimed in any one of the preceding claims which has components at least partially composed of Acrylonitrile Butadiene Styrene.

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24. A mobile telephone carrying casing as claimed in any one of the preceding claims which has components at least partially composed of a polycarbonate material.

25 A mobile telephone carrying casing as claimed in any
one of the preceding claims which comprises a membrane key
pad composed of a flexible material, which overlays the
keys of an encased mobile telephone and which has keys
5 which project through apertures in the casing, thus
enabling activation of the keys of the encased mobile
phone by depression of the keys of the membrane key pad.

10 26. A mobile telephone carrying casing as claimed in
claim 25 wherein the membrane key pad is attached to the
remainder of the casing.

15 27. A mobile telephone carrying casing as claimed in
claim 25 or 26 wherein the membrane key pad is partially
shielded by at least one cover.

28. A mobile telephone carrying casing as claimed in
claim 27 wherein the cover is retractable.

20 29. A mobile telephone carrying casing as claimed in any
one of the preceding claims wherein at least one of the
exterior surfaces of the components contains grooves which
ease gripping and thus separation of the components of the
casing.

25 30. A mobile telephone carrying casing as claimed in any
one of the preceding claims comprising attachment means
for attaching the carrying casing to clothing of a user.

30 31. A mobile telephone carrying casing as claimed in
claim 30 wherein the attachment means can attach the
carrying casing to a belt of the user, or to a holster
located in a fixed place, such as the dashboard of a car.

35 32. A mobile telephone carrying casing which can encase,
contain, and protect a mobile telephone and which is an
integer separate and independent from the carried mobile

telephone and comprises at least two parts which can be separated to allow introduction of a mobile telephone between the parts and joined together to encase the introduced mobile telephone, wherein at least one part is provided with electromagnetic radiation shielding means.

33. A mobile telephone carrying casing as claimed in claim 32 wherein the electromagnetic shielding means comprises a coating on a surface of one of the parts.

34. A mobile telephone carrying casing as claimed in claim 33 wherein the coating contains silver.

35. A mobile telephone carrying casing as claimed in claim 33 or claim 34 wherein the coating contains nickel.

36. A mobile telephone carrying casing as claimed in any one of claims 33 to 35 wherein the coating is sprayed on the surface.

37. A mobile telephone carrying casing as claimed in claim 36 wherein the coating is sprayed an interior surface.

38. Use of a mobile telephone carrying casing as claimed in any one of the preceding claims to encase, contain and protect a mobile telephone, the mobile telephone already having a casing which is an integral part of the mobile telephone.

39. A mobile telephone carrying casing substantially as hereinbefore described with reference to and as shown in the accompanying drawings.



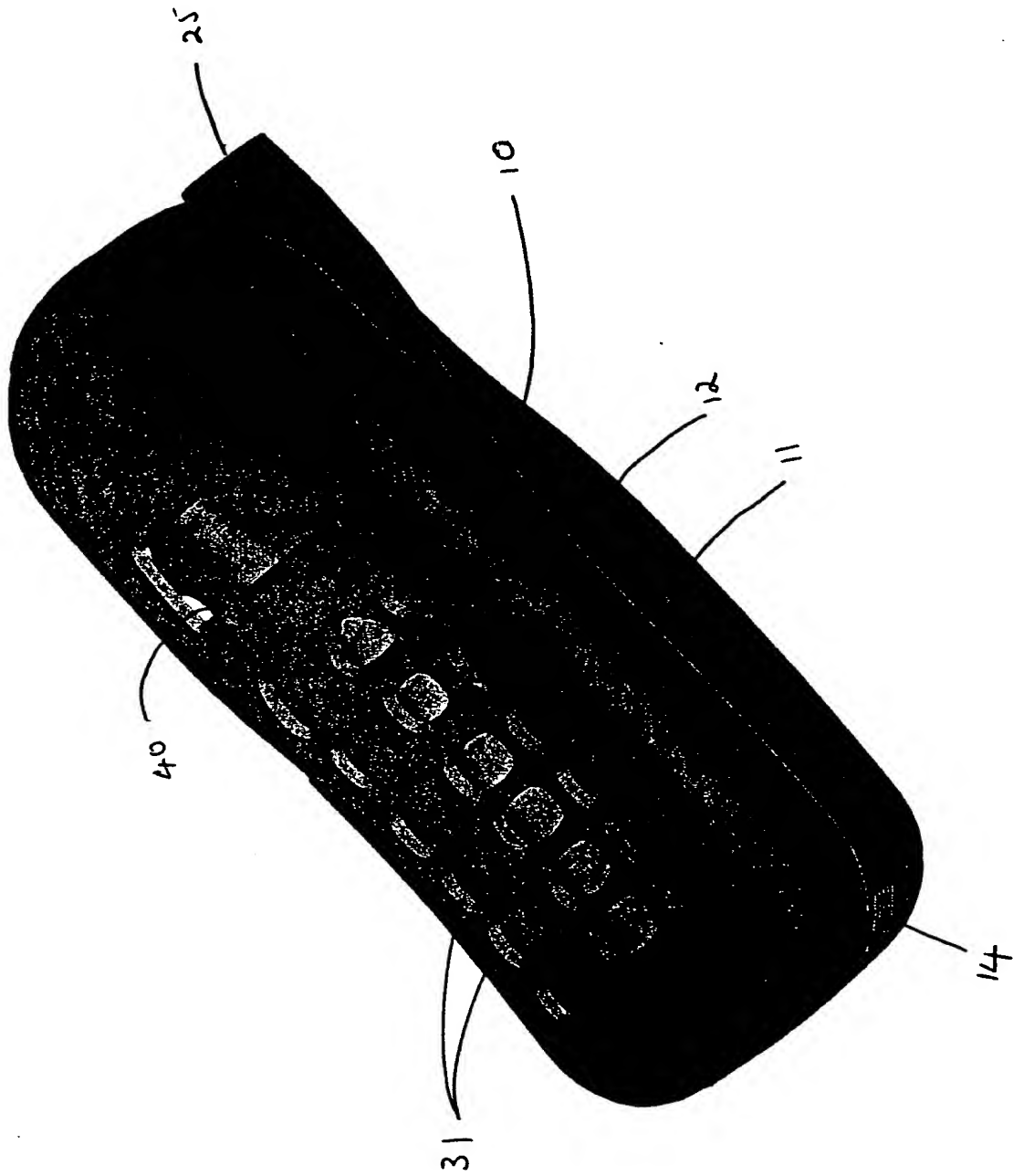


FIGURE 1



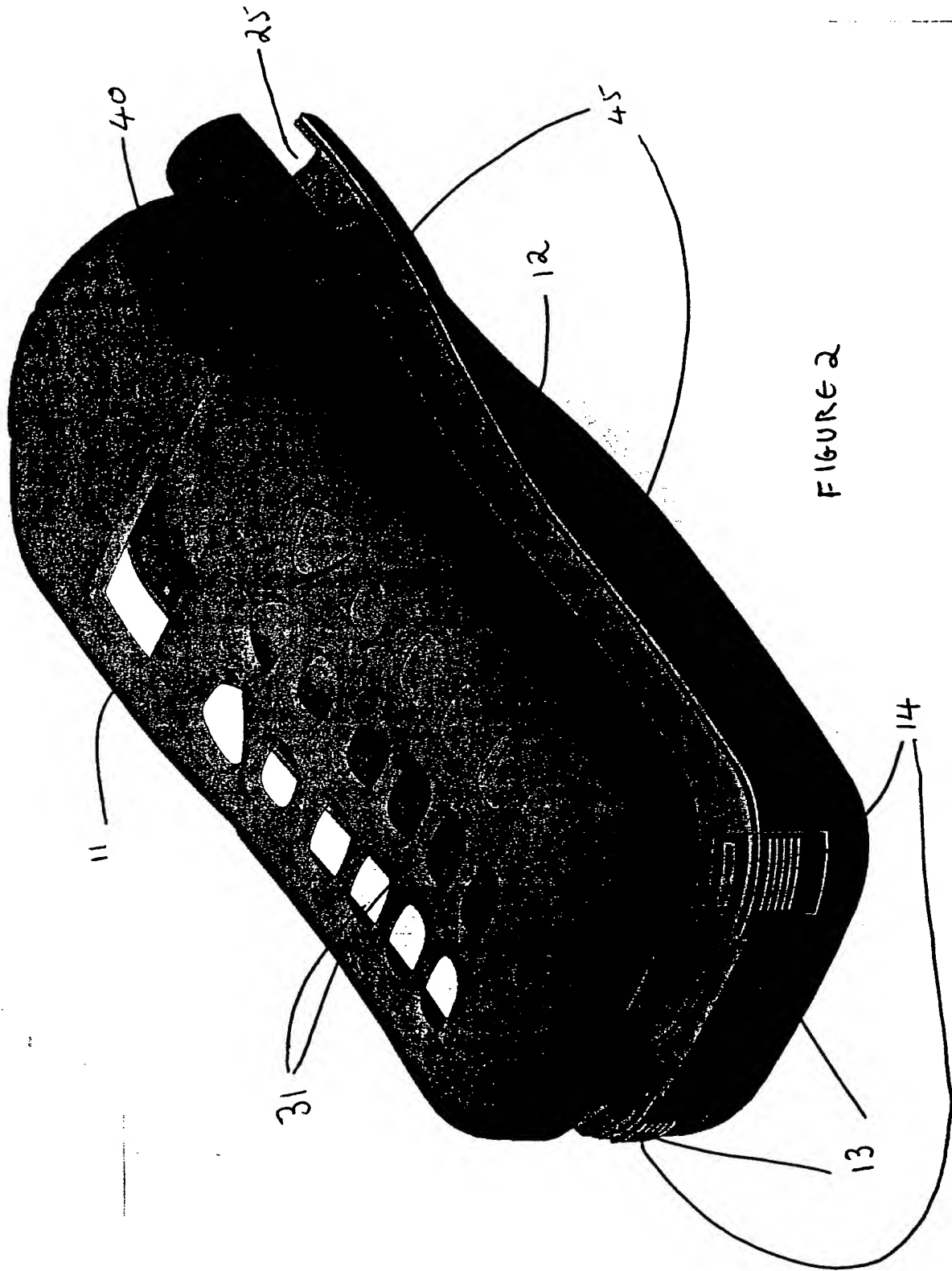


FIGURE 2



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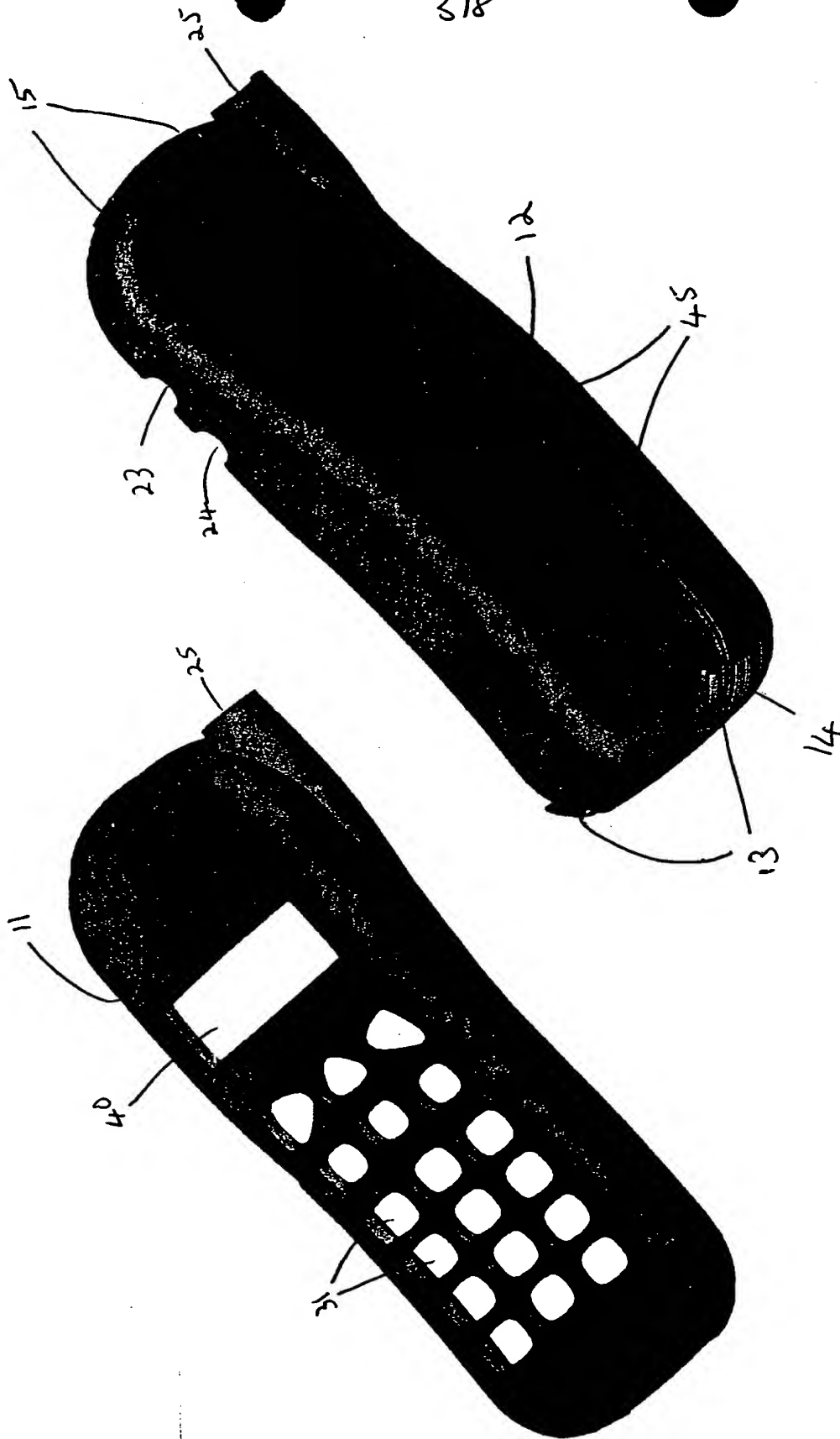


Figure 3



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FIGURE 4

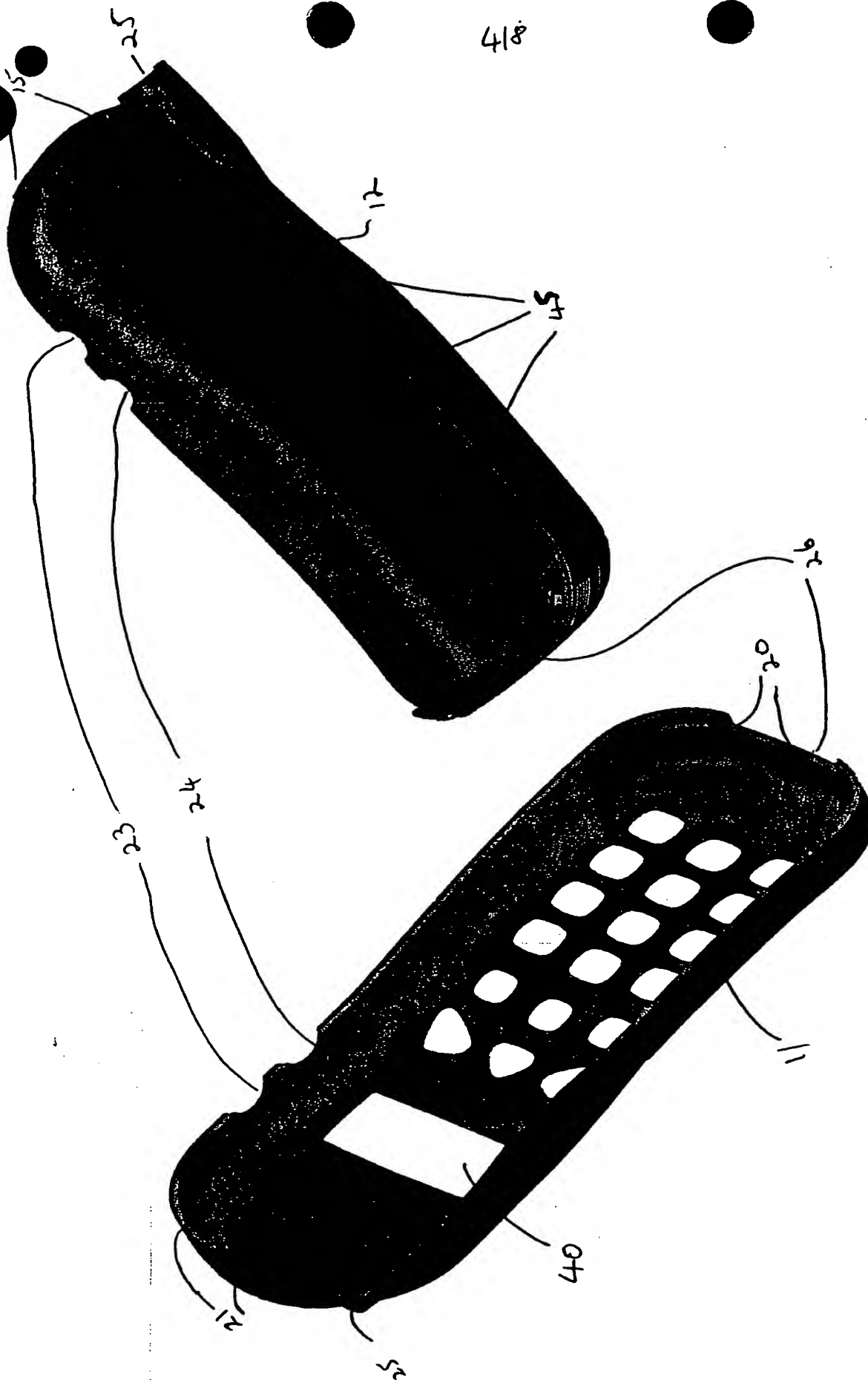
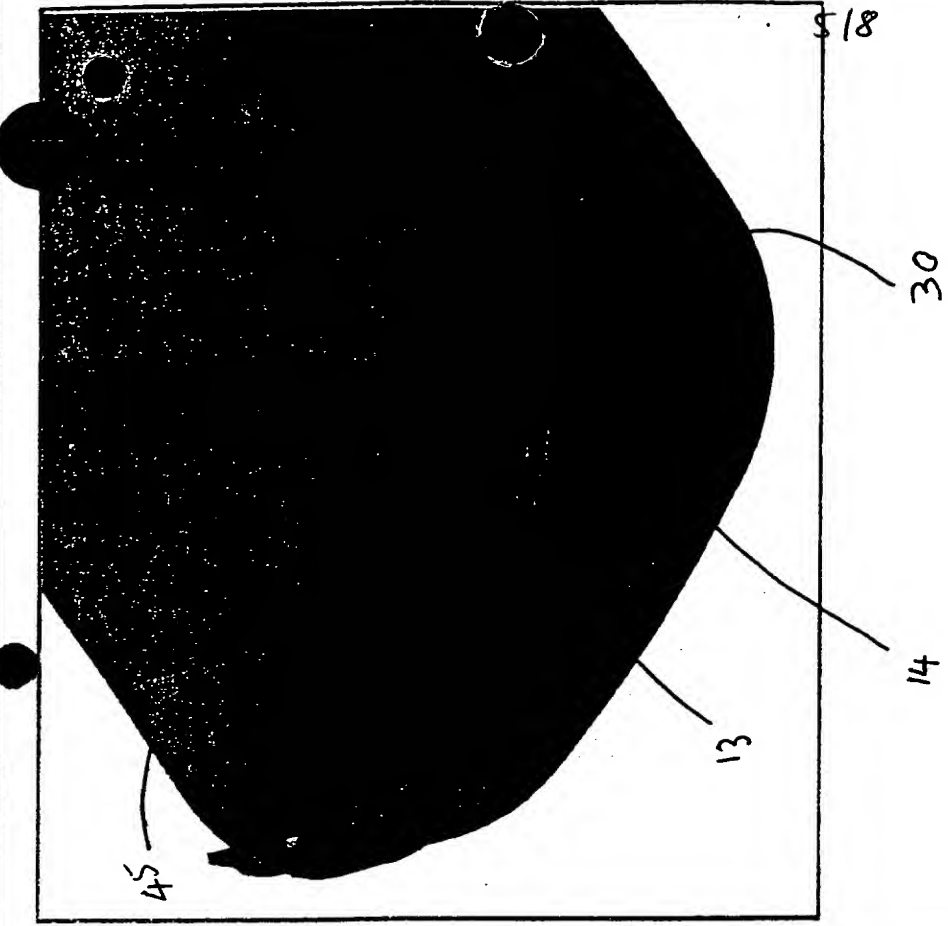
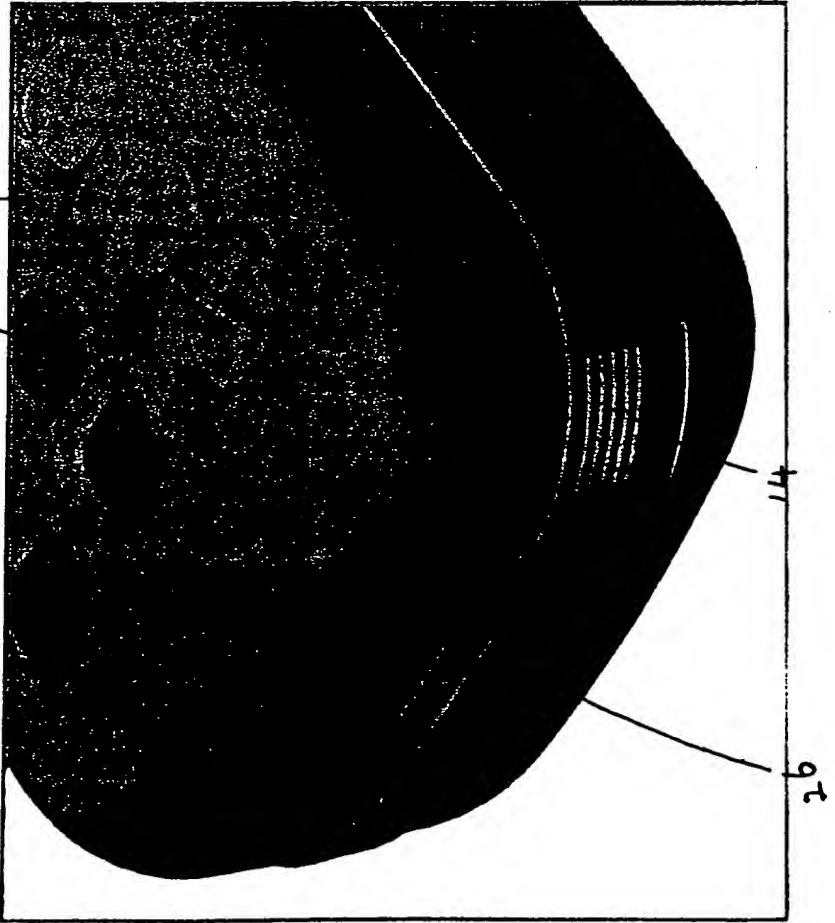
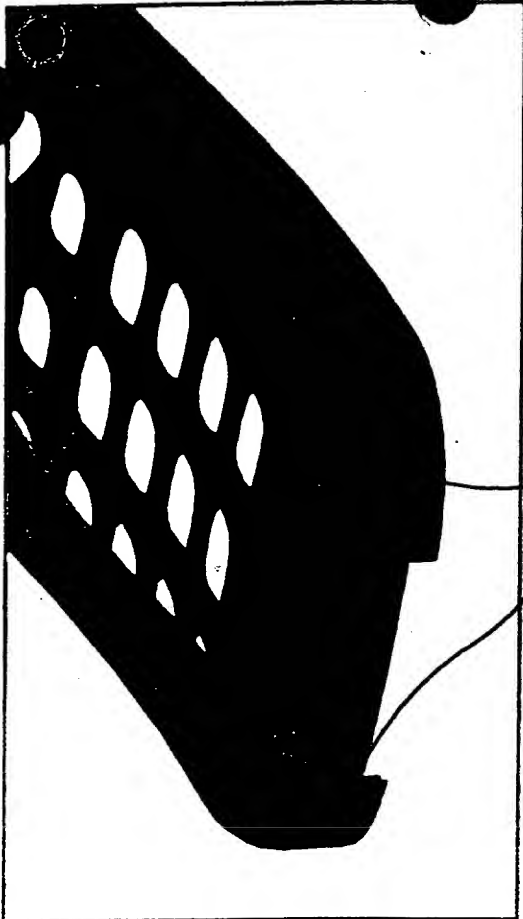




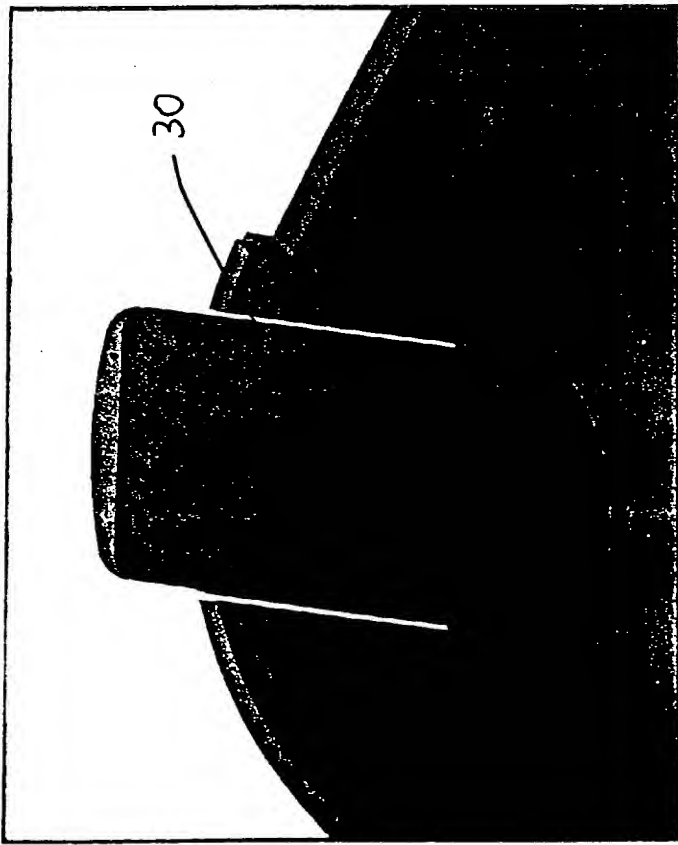
FIGURE 5







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FIGURE 6



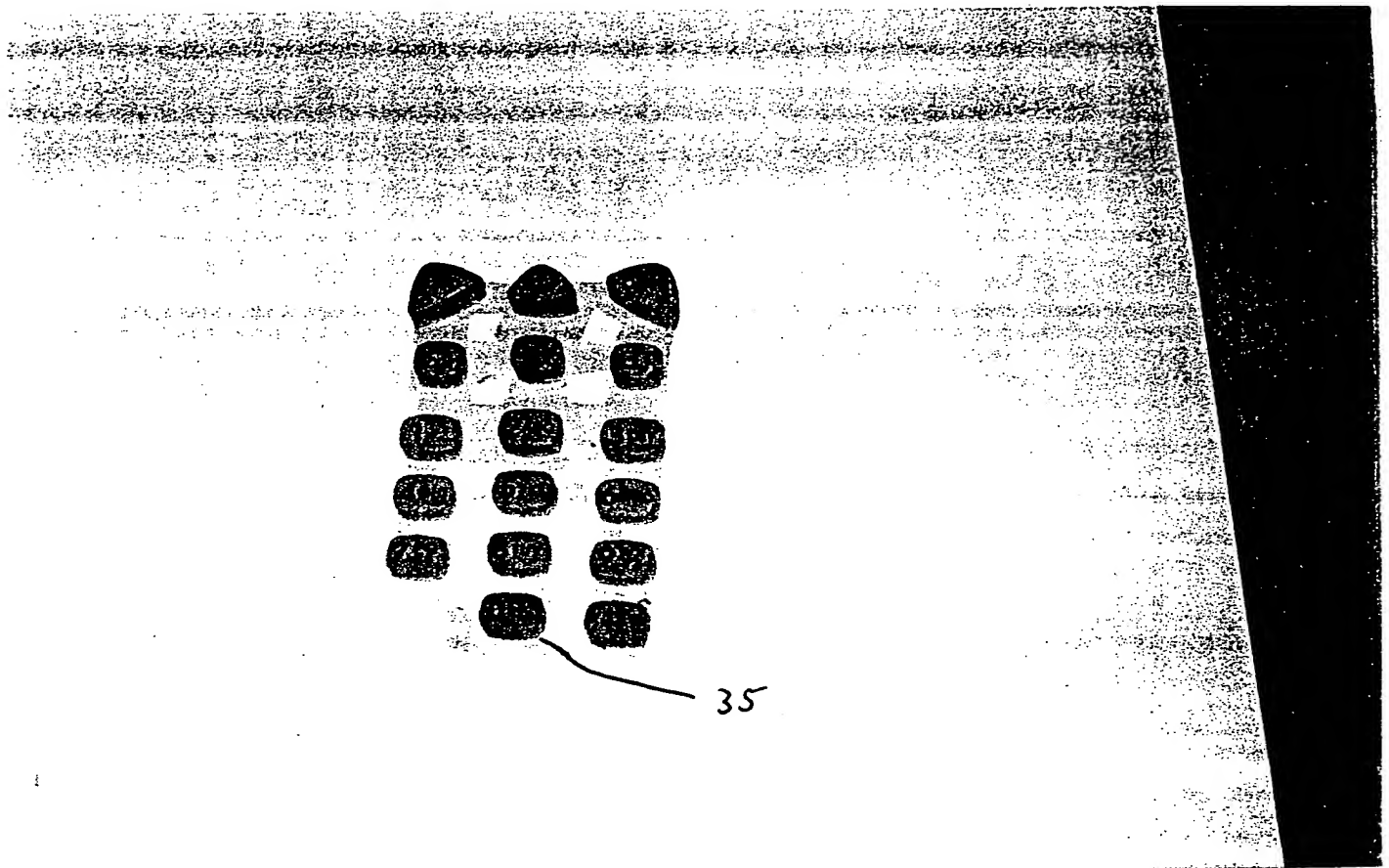


FIGURE 7



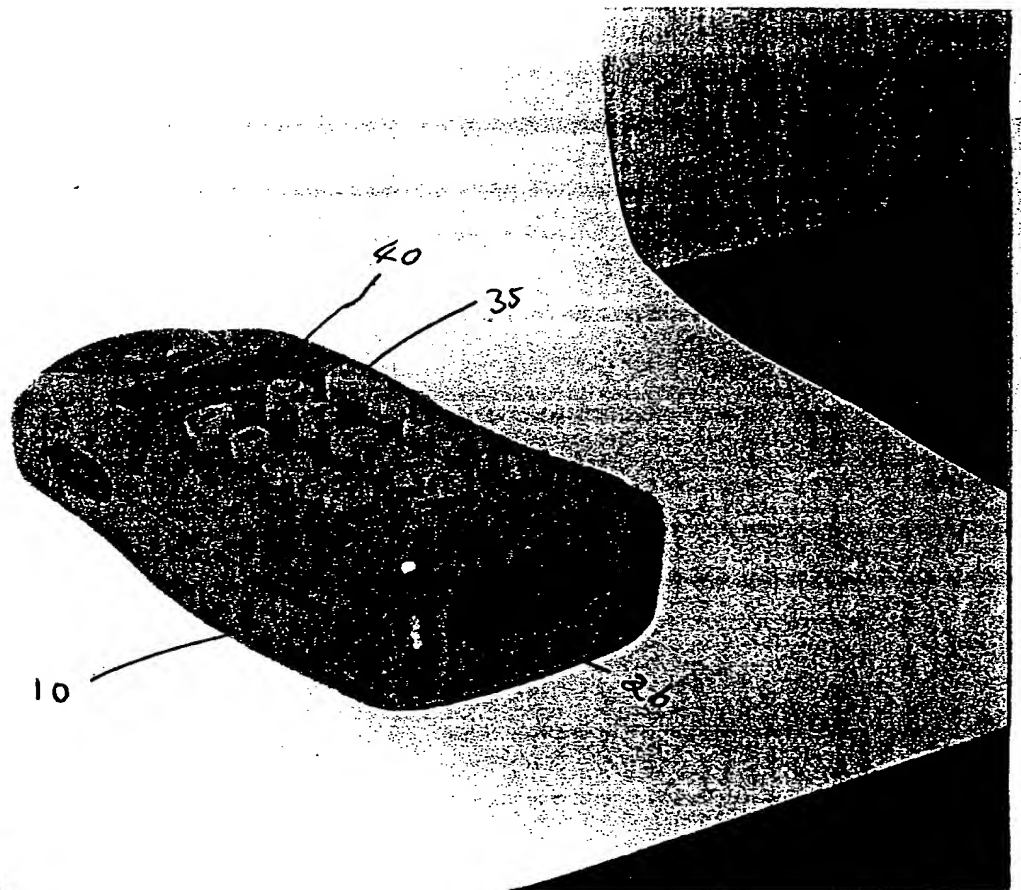


FIGURE 8

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